

CLAIMS

1. An ink for ink jet recording, comprising a aqueous medium
and a phthalocyanine dye dissolved or dispersed in the aqueous medium,
wherein the phthalocyanine dye is a water-soluble dye having
5 an oxidation potential of more positive than 1.0 and the ink has
a conductivity of 0.01 S/m to 10 S/m.

2. The ink for ink jet recording according to Claim 1, which
has a viscosity of 1 to 20 mPa·sec at 25°C.

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3. The ink for ink jet recording according to Claim 1 or 2,
which has a static surface tension of 25 to 50 mN/m at 25°C.

4. The ink for ink jet recording according to Claim 2 or 3,
15 wherein a viscosity of the ink has a viscosity ratio of not
greater than 250% from at 25°C to at 10°C, and a static surface tension
has a static surface tension ratio of not greater than 130% from
at 25°C to at 10°C.

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5. The ink for ink jet recording according to any one of Claims
1 to 4, which has a pH value of 4 to 12 at 25°C.

6. The ink for ink jet recording according to any one of Claims
1 to 5,

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which has a dye remaining ratio (density after fading/initial

density x 100) of not smaller than 60% (preferably 80%) after 24 hours of storage in an atmosphere of 5 ppm ozone in a monochromatic area that is obtained by printing with a monochromatic ink (cyan) in such a manner a cyan reflection density through a status A filter is from
5 0.9 to 1.1.

7. The ink for ink jet recording according to any one of Claims
1 to 6,

wherein the ink has Cu ions that are eluted with water in an
10 amount of not greater than 20% of a total amount of the dye after an ozone fading under the conditions defined in 6.

8. The ink for ink jet recording according to any one of Claims
1 to 7,

15 wherein the phthalocyanine dye is a water-soluble dye having an electron-withdrawing group at β -position of a benzene ring in the phthalocyanine.

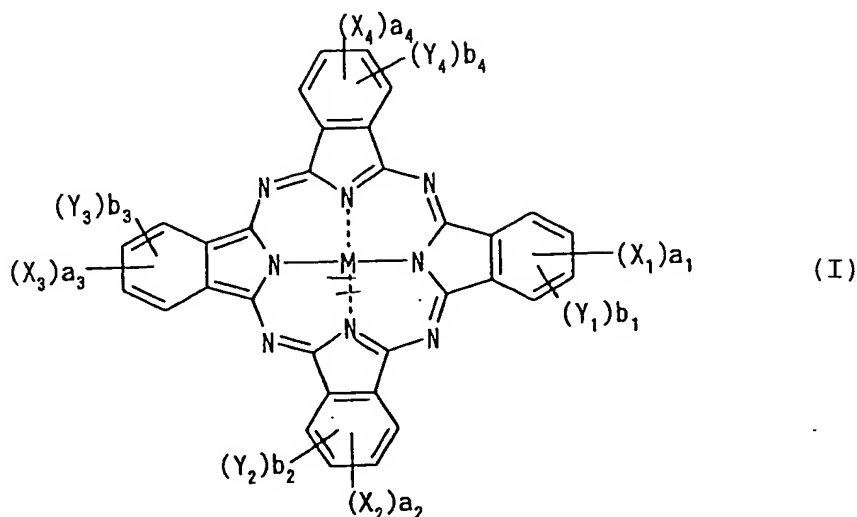
9. The ink for ink jet recording according to any one of Claims
20 1 to 8,

wherein the phthalocyanine dye is a water-soluble dye that is produced by a process which doesn't pass through a sulfonation of an unsubstituted phthalocyanine.

25 10. The ink for ink jet recording according to any one of

Claims 1 to 9,

wherein the phthalocyanine dye is represented by the following formula (I):



wherein X_1 , X_2 , X_3 and X_4 each independently represent $-\text{SO}-\text{Z}$, $-\text{SO}_2-\text{Z}$, $-\text{SO}_2\text{NR}_1\text{R}_2$, sulfo group, $-\text{CONR}_1\text{R}_2$ or $-\text{CO}_2\text{R}_1$; Z represents a substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkenyl group, substituted or unsubstituted aralkyl group, substituted or unsubstituted aryl group or substituted or unsubstituted heterocyclic group; R_1 and R_2 each independently represent a hydrogen atom, substituted or unsubstituted alkyl group, substituted or unsubstituted cycloalkyl group, substituted or unsubstituted alkenyl group, substituted or unsubstituted aralkyl group, substituted or unsubstituted aryl group or substituted or unsubstituted heterocyclic group; and when there are a plurality of $\text{Z}'\text{s}$, they may be the same or different;

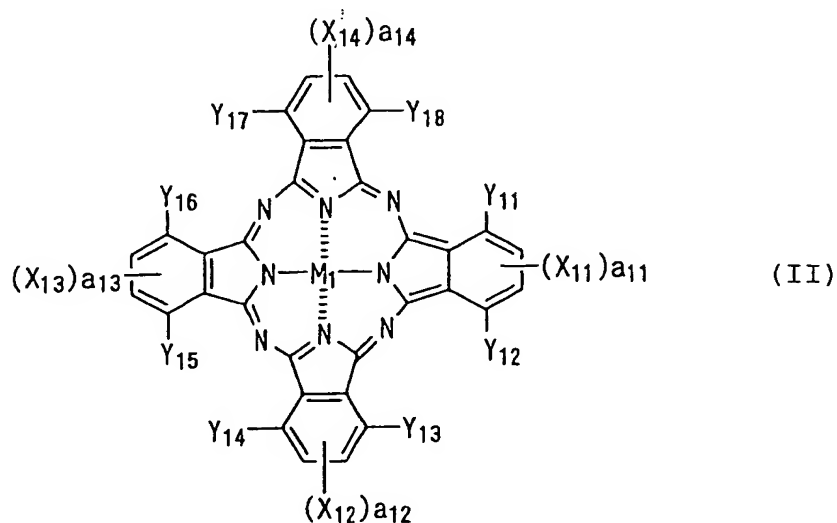
Y_1 , Y_2 , Y_3 and Y_4 each independently represent a monovalent substituent;

and when there are a plurality of any of X_1 to X_4 and Y_1 to Y_4 , they may be the same or different;

a_1 to a_4 and b_1 to b_4 represent the number of substituents X_1 to X_4 and Y_1 to Y_4 , respectively; a_1 to a_4 each independently represent an integer of from 0 to 4 and are not 0 at the same time; and b_1 to b_4 each independently represent an integer of 0 to 4; and

M represents a hydrogen atom, metal atom or oxide, hydroxide or halide thereof.

11. The ink for ink jet recording according to Claim 10, wherein the dye represented by the formula (I) is a dye represented by the following formula (II):



wherein X_{11} to X_{14} , Y_{11} to Y_{18} and M each have the same meaning as those in the formula (I); and a_{11} to a_{14} each independently represent an

integer of 1 or 2.

12. A method for ink jet recording, comprising using the ink for ink jet recording according to Claims 1 to 11.

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13. A method for recording an image on an image-receiving material, comprising ejecting an ink droplet onto the image-receiving material including an image-receiving layer containing an inorganic white particulate pigment on a support according to a record signal,

10 wherein the ink droplet comprises the ink for ink jet recording according to Claims 1 to 11.

14. A method for producing the ink for ink jet recording according to Claims 1 to 11, which comprises at least applying an
15 ultrasonic vibration.

15. A method for producing the ink for ink jet recording according to Claims 1 to 11,

 wherein the ink for ink jet recording prepared is filtered
20 through a filter having pores of an effective diameter of not greater than 1 μm and defoamed before use.